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Fig. 3.

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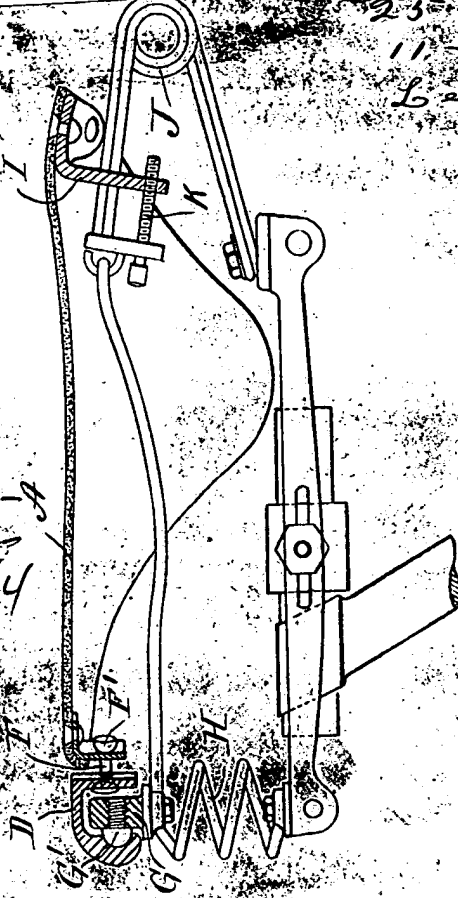


Fig. 2.

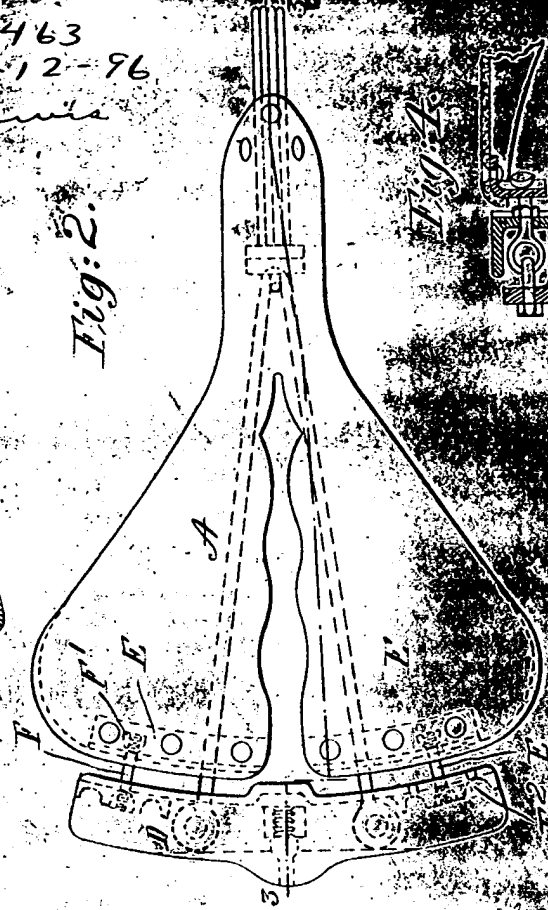
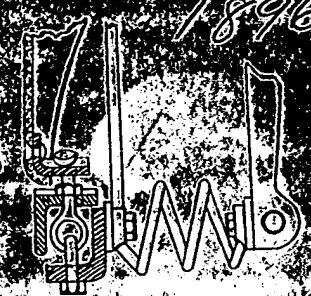


Fig. 4.



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Fig. 1.

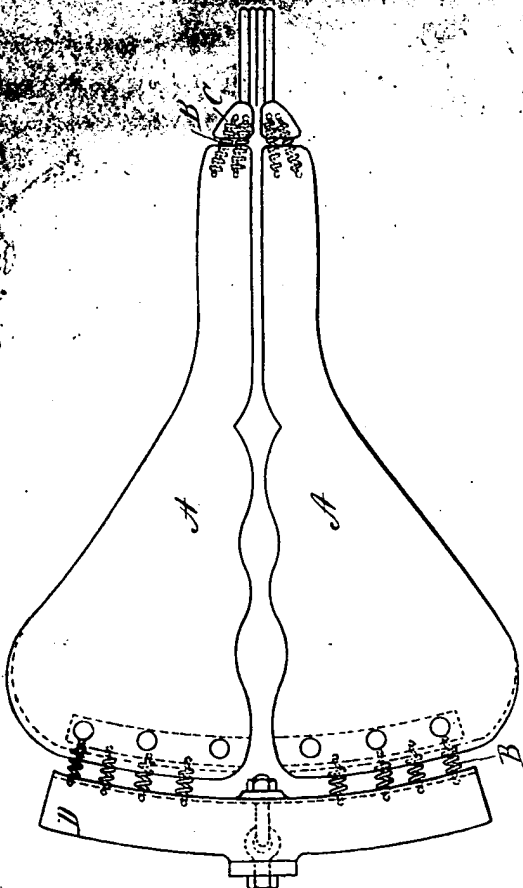
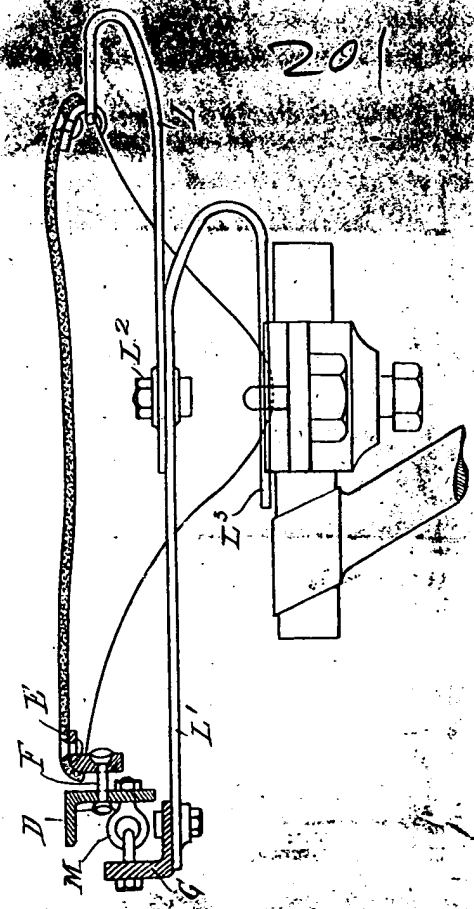


Fig. 5.



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N<sup>o</sup> 25,463



A.D. 1896

Date of Application, 12th Nov., 1896

Complete Specification Left, 12th Aug., 1897—Accepted, 18th Nov., 1897

PROVISIONAL SPECIFICATION.

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7  
DUPLICATE

**Improvements in or relating to Saddles for Velocipedes and other Vehicles.**

I, JOSEPH SLATER LEWIS, of 6, Acton Square, Peel Park, Manchester, in the County of Lancaster, Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to saddles for velocipedes and other vehicles and has  
5 for its object to construct an improved saddle which will automatically adjust itself to the various movements and shape of the rider's body.

In carrying out my invention, I prefer to construct that portion of the saddle on which the rider sits, in halves, and of interlaced metal links similar to those employed for steel burnishers, or of woven or twisted or other form of built  
10 up fabric such as employed for mattresses, the object being to obtain great flexibility and a maximum amount of ventilation; leather or other suitable fabric may however be used. I suspend the said halves of the saddle after the manner of hammocks, the front ends being connected nearly vertically to the pommel or front support, and the rear ends to a swing tree, which is connected  
15 at the centre with the rear or back support of the saddle by means of a universal ball and socket joint or its equivalent. Assuming that the said halves are not in full tension, it will be obvious that as one side or half of the saddle is pressed downwards by the lowering of the leg the other side or half will be raised or elevated in consequence of the upward movement of the other leg. By this  
20 arrangement a compensating or reciprocating movement of the halves of the saddle is permitted as the rider's legs move alternately upwards and downwards, thus securing an even pressure on all parts of the seat, and avoiding all danger of undue perineal pressure.

In order to increase the flexibility of the saddle I preferably provide a series  
25 of spiral springs which I attach to either or both ends of each of the halves of the saddle and to the pommel and the swing tree, or I may provide a laminated spring which may also form the said swing tree. As a further alternative, swing trees may be provided at the pommel or front end of the saddle such front swing trees being laminated springs or plain bars, but with universal joints in  
30 either case. I may also use two or more subsidiary swing trees with universal joints and in combination with spiral or laminated springs, and which I connect to the rear ends of the halves of the saddle. The front and rear supports are mounted on a horizontal T-bar or L-pin of the usual type, which is secured to the frame of the velocipede and which is raised and lowered in the  
35 usual manner. The said front and rear supports slide on this bar and are drawn outwards in order to adjust the tension of the halves of the saddle by means of nuts engaging with the T-bar or L-pin, which is screw-threaded for that purpose.

In a modification the springs are not attached to the seat portion of the saddle

[Price 8d.]

*Lewis's Improvements relating to Saddles for Velocipedes and other Vehicles.*

but are arranged between the front and rear supports and the T-bar or L-pin said supports being pivotally mounted on the bar or pin.

For the purpose of adjusting the distance apart of the halves of the saddle when necessary I may provide slots in the swing tree attached to the rear support in which slots the rear ends of the halves of the saddle may be moved laterally 5 and secured said ends being the ends of the spiral springs or the centres of the subsidiary swing trees. Instead of slots collars sliding along the said swing tree may be provided. All or any of the swing trees may be curved in such a manner as to properly fit the rider.

In a further modification the front and rear supports of the said halves, springs, 10 and swing trees are attached to a separate horizontal plate or bar, beneath which a number of vertical spiral springs are attached to a secondary plate or bar, the latter being mounted on the T-bar or L-pin in the usual manner. This arrangement permits the saddle to move about in any direction, and in combination with the beforementioned swing tree arrangement provides for almost 15 every movement of the rider's body.

Dated this 12th day of November 1896.

W. P. THOMPSON & Co.,  
322, High Holborn, London, W.C., Patent Agents for the Applicant.

## COMPLETE SPECIFICATION.

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**Improvements in or relating to Saddles for Velocipedes and other Vehicles.**

I, JOSEPH SLATER LEWIS of 6, Acton Square, Peel Park, Manchester, in the County of Lancaster, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described 25 and ascertained in and by the following statement:—

This invention relates to saddles for velocipedes and other vehicles and has for its object to construct an improved saddle which will automatically adjust itself to the various movements and shape of the rider's body.

In carrying out my invention I prefer to construct that portion of the saddle 30 on which the rider sits in halves and of interlaced metal links similar to those employed for steel burnishers, or of woven or twisted or other form of built up fabric such as employed for mattresses, the object being to obtain great flexibility and a maximum amount of ventilation; leather or other suitable fabric may however be used. I suspend the said halves of the saddle after the 35 manner of hammocks, the front ends being connected nearly vertically to the pommel or front support, and the rear ends to a swing tree, which is connected at the centre with the rear or back support of the saddle by means of a universal ball and socket joint or its equivalent. Assuming that the said halves are not in full tension, it will be obvious that as one side or half of the saddle is pressed 40 downwards by the lowering of one leg the other side or half will be raised or elevated in consequence of the upward movement of the other leg. By this arrangement a compensating or reciprocating movement of the halves of the saddle is permitted as the rider's legs move alternately upwards and downwards, thus securing an even pressure on all parts of the seat, and avoiding all danger 45 of chafing or undue perineal pressure.

In order that my invention may be clearly understood I will proceed to describe the same with reference to the accompanying drawings which illustrate by way of example various forms of my improved saddle.

*Lewis's Improvements relating to Saddles for Velocipedes and other Vehicles.*

Figure 1 is a plan of a saddle constructed in accordance with my invention.

Figure 2 is a similar view illustrating a modification.

Figure 3 is a section on the line 3—3 Figure 2.

Figure 4 is a sectional view illustrating a further modification.

5 Figure 5 is a side elevation partly sectional illustrating another method of mounting the saddle.

Referring now to Figure 1 the seat portion of the saddle is there shown made in halves A A which are attached by spiral springs B at the front end to the pommel C and at the rear end to a swing tree D which swing tree is pivotally attached to  
10 the rear support of the saddle for example by means of a ball and socket joint as hereinafter described with reference to Figures 2 and 3, or by links as shown for example in Figure 4, or by other suitable means. Swing trees similar to the swing tree D may also be provided at the pommel or front end of the saddle, being attached to the front support by universal joints. I sometimes provide  
15 laminated springs forming the swing tree instead of a plain bar.

In Figure 2 the seat portion A of the saddle is in one piece but divided at the rear, its rear ends being secured to two subsidiary swing trees E E connected by universal joints to the main swing tree D. Said universal joints may consist as shown in the drawings of bolts F with hemispherical nuts F<sup>1</sup>, the  
20 latter being received in suitable cavities in the swing trees. The swing trees E and D may also be connected if desired by spiral springs. In Figure 3 the method of connecting the swing tree D to the rear support G is very clearly shown, a stud G<sup>1</sup> being provided in the support with the hemispherical head of which a suitably formed cavity in the swing tree D engages.

25 The front and rear supports of the saddle may be mounted upon a horizontal T-bar or L-pin of the usual type, which is secured to the frame of the velocipede and which is raised and lowered in the usual manner. A modified construction is however illustrated in Figure 3 in which the rear support G is mounted on a spiral spring H while the front support I is mounted upon a  
30 cradle spring J being free to move backwards and forwards on said spring, its position being adjusted by means of a screw threaded bolt K which engages the said support as shown.

In another modification shown in Figure 5 the front of the saddle is hooked into the front end of a spring plate or rod L which is adjustably secured to a  
35 second bar or rod L<sup>1</sup> by means of the nut L<sup>2</sup>. The rod or bar L<sup>1</sup> bears at its rear end the rear support G of the saddle and is bent at its forward end as shown, its horizontal part L<sup>3</sup> being secured to the T-bar or L-pin by any suitable means. Figure 5 and also Figure 4 show a link connection M between the swing tree D and the saddle support G in place of the stud G<sup>1</sup> shown in Figure 3. I  
40 do not however confine myself to the specific means of connection shown.

For the purpose of adjusting the distance of the halves or of the rear portions of the saddle when necessary I may provide a series of slots or holes F<sup>2</sup> (see Figure 2) in the swing tree D, the hemispherical nuts F<sup>1</sup> being adapted to fit  
45 any of the slots so that the bolts F may be brought nearer to or farther apart from each other when desired. A similar arrangement may be provided where spiral springs B shown in Figure 1 are used. Instead of slots, collars sliding along the swing tree D may be provided.

All or any of the swing trees may be curved in such a manner as to properly fit the rider.

50 In a further modification the front and rear supports of the saddle springs and swing trees are attached to a separate horizontal plate or bar beneath which a number of spiral springs are attached to a second plate or bar, the latter being mounted on the T-bar or L-pin in the usual manner. This arrangement permits the saddle to move about in any direction and in combination with the before-mentioned swing tree arrangement provides for almost every movement of the  
55 rider's body.

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*Lewis's Improvements relating to Saddles for Velocipedes and other Vehicles.*

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Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. For velocipedes and other vehicles, a saddle capable of rotating on an approximately horizontal axis substantially parallel to the plane of the wheels. 5

2. A saddle the seat portion of which has its front end or rear end or both ends joined to a swing tree or to swing trees connected through a universal joint or joints to the saddle support or supports.

3. Saddles constructed substantially as herein described with reference to the accompanying drawings. 10

Dated this 12th day of August 1897.

W. P. THOMPSON & Co.,  
Of London, Liverpool, Manchester and Birmingham,  
Patent Agents for the Applicant.